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D.A.T.A. Data System Basic User's Guide

ARINC Research Corporation

NAVAL OCEAN SYSTEMS CENTER
San Diego, California 92152–5000

E. G. SCHWEIZER, CAPT, USN
Commander

R. M. HILLYER
Technical Director

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This guide provides a quick reference for users of the D.A.T.A. Data System which is part of the NOSC microelectronics database. The D.A.T.A. Data System is an easy-to-use, menu-driven query and reporting system. Data retrieval, data entry, and default reports generation facilities are accessed via user-interactive fill-in-the-blanks form interfaces.

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FOREWORD

This guide is a reference for users of the D.A.T.A. Data System, which is
a part of the Microelectronics Database (MDB) developed and maintained by
NAVOCEANSYSCEN Code 551. The D.A.T.A. Data System is an easy-to-use,
menu-driven query and reporting system which provides easy access to
significant microcircuit information.

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FIGURES

1.0 INTRODUCTION

The Solid State Electronics Division, Design and Development Branch, Naval Ocean Systems Center (NAVOCEANSYSCEN) has developed and maintains the Microelectronics Database (MDB). The MDB resides on an IBM-PC/AT-compatible and is accessed through the INFORMIX data base management system.

The twenty-three volumes of D.A.T.A. books produced by D.A.T.A. Corporation are the largest single source of information on microcircuits. NAVOCEANSYSCEN has acquired thirteen volumes of the twenty-three D.A.T.A. books in the form of 1/2", 9-track magnetic tapes for inclusion in the MDB. Data bases and user interface processors for some D.A.T.A. tapes have been developed and installed on the host computer; not all data bases are currently available due to insufficient disk storage.

This guide is intended for use as a quick reference for users of the D.A.T.A. Data System which is a part of the MDB. The D.A.T.A. Data System is an easy-to-use, menu-driven query and reporting system. Data retrieval, data entry and default reports generation facilities are accessed via user-interactive fill-in-the blanks form interfaces.

1.1 Objectives

The primary objective of the D.A.T.A. Data System is to provide quick and easy access to the D.A.T.A. books via electronic data processing. Other objectives are to:

o   Provide an easy method for tracking discontinued parts and determining impact of discontinuation on Naval Systems

o   Provide an easy method for cross-referencing foreign devices with U.S. equivalence by design function and/or part number

o   Provide an immediate access to micro-electronics information that can be used in making export decisions

o   Provide a single menu-driven, multi-user micro-electronics data system

o   Provide immediate access to historical, as well as current, data

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o   Provide immediate access to commercial, as well as military, data

o   Provide easily maintained relational data bases

o   Provide an inexpensive, efficient method for integrating future data
    with existing data

o   Provide local and remote on-line data retrieval using
    user-interactive fill-in-the-blanks forms interface

o   Provide local and remote on-line generation of default reports using
    user-interactive fill-in-the-blanks forms interface

1.2 System Configuration

The D.A.T.A. Data System is hosted on an IBM-PC/AT-compatible micro-
computer with three megabytes of main memory and 460 megabytes of hard disk
capacity. The hardware also consists of a 1.2 megabyte 5 1/4" floppy drive,
an Epson FX-286 wide-carriage dot-matrix printer and a 9-track, dual density
(1600 and 3200 BPI) tape drive. There is also an eight-channel multiplexor
to allow remote hook-ups via the NAVOCEANSYSCEN GPCC network.

The computer system is running under the SCO XENIX System V Multi-User
Operating System, release 2.2. The data base management system in use is the
INFORMIX-SQL DBMS, release 2.00.05b.

1.3 Data Base Structure

Each D.A.T.A. tape is loaded into an INFORMIX database of similar struc-
ture. The data bases consist of seven tables: D.A.T.A. Catalog Names table,
Device Parameter table, Parameter Names table, Device Manufacturer table,
Manufacturers table, Device table and Device Names table. A graphic repre-
sentation of the data bases, how the tables are joined and the data items
that join them is shown in Figure 1.

2.0 BASIC OPERATIONS

This section describes system operations from logging-on to accessing the
data bases, generating reports and logging-off. Figure 2 shows the func-
tional structure of the D.A.T.A. Data System.

2.1 Getting Started

The initial step to getting started is to turn the system on and boot-up the operating system. We will assume that you have already done this and the following message is displayed on the screen:

bluefish!login:

At this point you will want to type in your assigned log-in. If you make a mistake, either use the backspace key to correct it or press return until the above prompt is redisplayed. After you enter your log-in, press return. The computer will now ask for your password with the following prompt:

PASSWORD:

Enter your password and press return. Notice that the password is not echoed for security. If you make a mistake, press return and start again.

After successful log-in, the following messages are displayed:

Welcome to XENIX System V for personal computers
Brought to you by The Santa Cruz Operation
WELCOME TO THE D.A.T.A. DATA SYSTEM

The main menu is displayed as shown in Figure 3.

2.2 Data System Main Menu

This is the top-level menu that is displayed at the beginning of the session. Option 1 allows you to access the database query and report menus. Option 2 allows you to load a new D.A.T.A. tape into a database or to reload an existing database with an updated tape.

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D.A.T.A. DATA BASE STRUCTURE

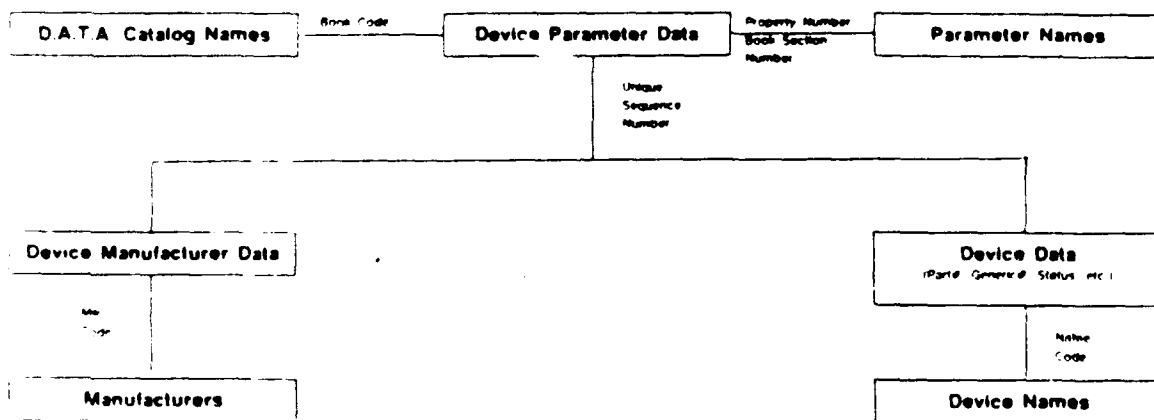● Seven tables of data linked together as shown

Figure 1. D.A.T.A. Data Base Structure

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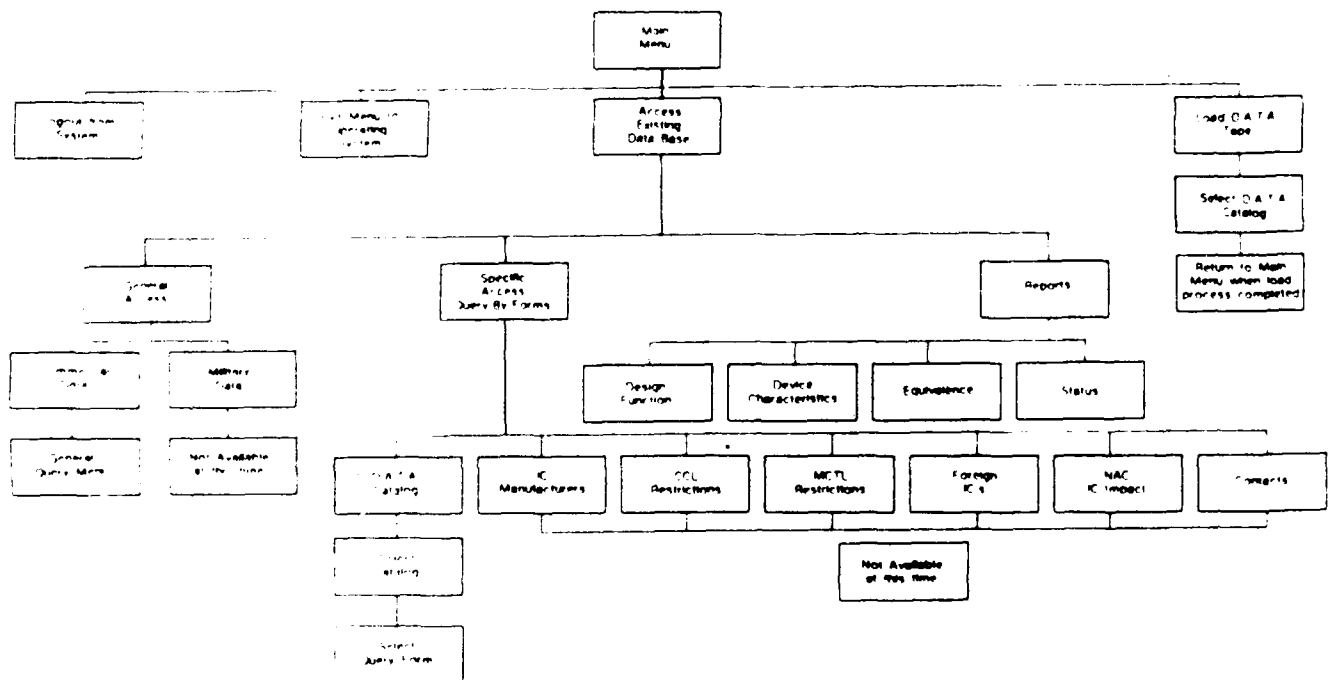# D.A.T.A. DATA SYSTEM FUNCTIONAL STRUCTURE

Figure 2.   D.A.T.A. System Functional Structure

DATA SYSTEM MAIN MENU
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1. Access Existing Data Bases

2. Load D.A.T.A. Tape

3. Exit Menu to Operating System

4. Logout from System

Enter number of desired Item:

Figure 3.   Data System Main Menu

Option 3 gives you direct access to the XENIX operating system. The following message is printed before exiting to the operating system:

EXITING MENU TO OPERATING SYSTEM
enter 'menu' to enter menu again
enter 'bye' to logout from system

Option 4 logs you out of the D.A.T.A. Data System with the following message:

EXITING D.A.T.A. DATA SYSTEM

The following sections describe options 1 and 2 in greater detail.

2.3 Accessing Existing Data Bases

Selecting option 1 from the main menu results in the display of the Query Selection menu as shown in Figure 4.

Option 1 accesses the General Query menu and is described in section 2.3.1. Option 2 (section 2.3.2) gives direct access to the database tables via INFORMIX-SQL query forms. Option 3 (section 2.3.3) accesses the reports via the Report. Options 4 through 6 are self-explanatory.

2.3.1 General Query Access

Selection of option 1 from the Query Selection menu results in the display of the Data Type menu as shown in Figure 5. All D.A.T.A. data bases are accessed in the same fashion except for the Military IC's and Semiconductors data base. This menu provides access to the Military data base or all other data bases via options 1 and 2. Options 3 through 6 are self-explanatory.

2.3.1.1 Commercial Data Access

Selection of option 1 from the Data Type menu results in the display of the General Query Selection menu as shown in Figure 6. The first twelve options on this menu are used to build the query statement that accesses the

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DATA BASE QUERY SELECTION
---

1. General Access (Query Menu)

2. Specific Access (Query-By-Form/Data Base Maintenance)

3. Reports

4. Return to Main Menu

5. Exit Menu to Operating System

6. Logout from System

Enter number of desired item:

Figure 4.   Data Base Query Selection Menu

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DATA TYPE

1. Commercial Data

2. Military IC's and Semiconductors

3. Return to Query Selection Menu

4. Return to Main Menu

5. Exit Menu to Operating System

6. Logout from System

Enter number of desired item:

Figure 5. Data Type Menu

GENERAL QUERY SELECTION

1. Part Number
2. Generic Number
3. Design Function
4. Functional Equivalence Number
5. Manufacturer Country
6. Device Status
7. Device Introduction Date
8. FSCM Number
9. Circuit Drawing Number

10. Outline Drawing Number
11. Manufacturer Name
12. D.A.T.A. Catalog (default is all)
13. Execute Query
14. Return to Data Type Menu
15. Return to Query Selection Menu
16. Return to Main Menu
17. Exit to Operating System
18. Logout from System

Enter number of desired item:

Figure 6. General Query Selection Menu

database(s). Option 13 executes the query after you are satisfied with the selection criteria. Options 14 through 18 are self- explanatory.

The data you select to build the query from the menu is input in an almost identical manner for each of the twelve items on the menu. The following example shows how to input the part number into the query:

Enter Part Number for query (enter 'd' when done):

This prompt continues until a 'd' is entered, upon which the following is displayed:

You have selected the following Part Number(s):
12345
67890
45678
98765
Enter 'a' if you wish to abort the Part Number query.
Any other entry will continue the process:

After pressing return you are returned to the General Query Selection menu. At this point you may either select another data item for the query in the same manner as above, execute the query, or abort the query and return to a previous menu.

2.3.1.2 Military Data Access
This section is T.B.D.

2.3.2 Specific Access
Selection of option 2 from the Query Selection menu results in the display of the Data Base menu as shown in Figure 7. Currently only the D.A.T.A. Catalogs are available; options 2 through 7 are not available at this time. Options 8 through 11 are self-explanatory.

DATA BASE MENU

1. D.A.T.A. Catalogs

2. IC Manufacturers

3. CCL Restrictions

4. MCTL Restrictions

5. Foreign Integrated Circuits

6. NAC IC Impact

7. Contacts

8. Return to Query Selection Menu

9. Return to Main Menu

10. Exit Menu to Operating System

11. Logout from System

Enter number of desired item:

Figure 7. Data Base Menu

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2.3.2.1 D.A.T.A. Catalogs

Selection of the D.A.T.A. Catalogs option results in the display of the D.A.T.A. Catalogs menu as shown in Figure 8. After you select the data base you want to query, the Query-by-Forms menu (Figure 9) is displayed.

Each option on the Query-by-Forms menu allows you direct access to each of the tables within the chosen data base via INFORMIX-SQL screen forms. These screen forms allow the experienced user to add, delete and update records within the data base tables as well as query the data base. The screen form for the D.A.T.A. Book table (option 8 from the Query-by-Forms Menu) is shown below. For more information on the options available, refer to the INFORMIX-SQL Reference Manual and the INFORMIX-SQL Users Guide.

Query Next Previous Add Update Remove Table Screen Current Master Detail
    Output Exit   **** 1:   databook table****

D.A.T.A. Books

D.A.T.A. Books Code: [   ]
D.A.T.A. Book Description: [   ]

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D.A.T.A. CATALOGS

1. Audio/Video IC's . . . . AV
2. Diode . . . . DI
3. Interface IC's . . . . IF
4. Digital IC's LC
5. Linear IC's . . . . LN
6. Modules/Hybrids . . . . MH
7. Microprocessor IC's . . . . MP
8. Microwave . . . . MW
9. Optoelectronics . . . . OE
10. Military IC's and Semiconductors . . . . QM
11. Memory IC's . . . . SM
12. Transistors. . . . . TR
13. Thyristors . . . . TY
14. Return to Data Base Menu
15. Return to Main Menu
16. Exit Menu to Operating System
17. Logout from System

Enter number of desired item or the 2-character
book code for your desired selection:

Figure 8.   D.A.T.A. Catalogs Menu

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QUERY-BY-FORMS MENU

1. General Purpose Form
2. Manufacturers
3. Device Names
4. Device Parameters
5. Device Data (Part#, Generic#, Equiv#, Status, etc.)
6. Manufacturer Data
7. Device Parameter Codes and Data
8. D.A.T.A. Books
9. Return to D.A.T.A. Catalogs Menu
10. Return to Query Selection Menu
11. Return to Main Menu
12. Exit Menu to Operating System
13. Logout from System.

Enter number of desired item:

Figure 9.   Query-by-Forms Menu

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2.3.3 Reports

Selection of option 3 from the Query Selection menu results in the display of the Reports menu as shown in Figure 10. Four types of reports are available.

The Equivalence report provides data on all micro-electronics parts functionally equivalent to the user-supplied part number or generic number. A sample report is shown in Figure 11.

The Part Status report provides status, either active, discontinued or both, of a part based on user-supplied part number or generic number. A sample report is shown in Figure 12.

The Device Characteristics report provides data on a single device including all parametric information based on user-supplied part number. A sample report is shown in Figure 13.

The Design Function Report provides data on all devices that have the same design function as the design function selected from a menu of available names.

REPORT TYPE		SEARCH METHOD	
		Part Number	Generic Number
Equivalences		1	2
PART STATUS:	Active	3	4
	Discontinued	5	6
	Both	7	8
Device Characteristics		9	
Design Function		10	

Enter number of desired report ('e' to exit):

Figure 10.   Report Type Menu

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EQUIVALENCE REPORT (BY PART NUMBER)

Enter Part Number: MC14500BAL

EQUIVALENT PARTS FOR MC14500BAL   (EQUIV 45MC00)

1. Manufacturer Part Number: MC14500BCL
              Manufacturer: MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
           Design Function: 1 BIT MICROPROCESSOR
             Device Status: ACTIVE
       Manufacturer Country: USA

2 Manufacturer Part Number: MC14500BCP
              Manufacturer: MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
           Design Function: 1 BIT MICROPROCESSOR
             Device Status: ACTIVE
       Manufacturer Country: USA

Figure 11.   Sample Equivalence Report

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ACTIVE AND DISCONTINUED PARTS REPORT (BY GENERIC NUMBER)

Enter Generic Number (+ may be used as wild card): 14500

PARTS STATUS REPORT -- ACTIVE AND DISCONTINUED

1   Manufacturer Part Number: MC14500BAL
          Generic Number: 14500
          Design Function: 1 BIT MICROPROCESSOR
          Manufacturer: MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
          Country: USA
          Device Status: ACTIVE

2   Manufacturer Part Number: MC14500BCL
          Generic Number: 14500
          Design Function: 1 BIT MICROPROCESSOR
          Manufacturer: MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
          Country: USA
          Device Status: ACTIVE

3   Manufacturer Part Number: MC14500BCP
          Generic Number: 14500
          Design Function: 1 BIT MICROPROCESSOR
          Manufacturer: MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
          Country: USA
          Device Status: ACTIVE

4   Manufacturer Part Number: MC14500BAP
          Generic Number: 14500
          Design Function: 1 BIT MICROPROCESSOR
          Manufacturer: MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
          Country: USA
          Device Status: DISCON

Figure 12. Sample Parts Report

DEVICE CHARACTERISTICS REPORT

Enter Part Number: C8259A-8

CHARACTERISTICS OF PART C8259A-8

Manufacturer:	INTEL CORP.
Generic Number:	8259
Design Function:	PRIORITY INTERRUPT CONTROLLER
Device Status:	ACTIVE
Manufacturer Country:	USA

1.	PAGE & LINE	MP ED:11 PG:154 LN:20
2	BUFFER · INTERNAL STORAGE	YES
3	ERROR DETECT/CORREC CAPABILITY	NO
4	INTERRUPT CAPABILITY	YES
5	PROGRAMMABLE · Y OR N	YES
6	PWR REQ'D CURR · MAX	8.50E-02 Amps
7	PWR REQ'D VOLT · NOM	5.00E+00 Volts
8.	TECHNOLOGY	NMS
9	TYPE CODE	PIC
10.	uP FAMILY	8080
11	DEVICE DESCRIPTION	Priority Interrupt CNT
12.	DEVICE DESCRIPTION	LR
13	OPER TEMP RANGE	CM

Figure 13.   Sample Device Characteristics Report

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2.4 Loading D.A.T.A. Tapes

Selecting option 2 from the main menu allows you to load a D.A.T.A. tape
into a data base for subsequent access or to reload an existing data base
with a more recent version of a D.A.T.A. tape. The first menu that is dis-
played after selecting the load option is the D.A.T.A. Catalogs menu as shown
in Figure 8. After the D.A.T.A. book is selected, a message similar to the
following is displayed:

Processing D.A.T.A. Book mp
READY TO BEGIN TAPE DUMP

Make sure tape is positioned at beginning and is on-line.
Hit return when ready (or 'a' to abort):

At this point you want to make sure the tape drive is turned on, the
correct tape is loaded and the tape drive is on-line. If you choose to abort
this process, the following message is displayed prior to returning to the
main menu.

TAPE PROCESS ABORTED*

If the tape you are trying to load is already contained in a data base
you will be asked to verify the load as this will overwrite the existing data
base. After the load process begins several status messages will be dis-
played on the screen to keep you abreast of what is happening. A complete
list of status messages, as well as the exact time they occurred, is stored
in the files date.tape.<bookcode> and date.dbload.<bookcode>. These files are
very useful when the process aborts unexpectedly or to see how long each
process takes.

The tape process and the subsequent database load is rather lengthy and
may take as long as a day or more to complete. A short synopsis of the
entire process follows. First, the data on the D.A.T.A. tape is loaded into
several files on the disk. The files are then blocked into usable records.

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These blocked files are combined and/or extracted into other files to prepare them for loading into the data base. Then, some of the larger data base files are split into smaller files. Next, the existing data base, if there is one, is purged. The new data base is created, as well as all the data base tables and indexes. Finally, the data is loaded into the data base.

It should be noted that once the data loading process begins the user is returned to the main menu. No attempt should be made to log-off the system until the load is completed. If you log-off before the load finishes, the load process will be aborted.

3.0 SYSTEM SOFTWARE

This section presents a brief overview of the XENIX Operating System and the INFORMIX-SQL Data Base Management System.

3.1 XENIX Operating System

The XENIX system consists of a general-purpose multi-user operating system and over one hundred utilities and application programs. The XENIX system is built around the XENIX operating system. The purpose of an operating system is to organize and control the resources of a computer so that they can be used efficiently. These resources include memory, disks, lineprinters, terminals, and any other peripheral devices connected to the system. The heart of the XENIX system is a "multi-user" and "multi-tasking" operating system. A multi-user system permits several users to use a computer simultaneously, thus providing lower cost per user. A multi-tasking system permits several programs to run at the same time and increases productivity, because multiple programs can run simultaneously rather than in sequence.

Because UNIX (and thus XENIX) has been accepted as a standard for "high-end" operating systems, a great deal of software is available for this environment. In addition, XENIX is a bridge to the MS-DOS operating system, the most widely used 16-bit operating system in the world. For systems that support DOS, XENIX provides commands that let you access DOS format files and

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disks. The XENIX system also includes several widely praised enhancements (developed at the University of California at Berkeley), and a visual interface similar to other Microsoft productivity tool interfaces.

Other characteristics of the XENIX system are that it provides:

o   A powerful command language for programming XENIX commands. Unlike other interactive command languages, the XENIX "shell" is a full programming language.

o   Simple and consistent naming conventions. Names can be used absolutely, or relative to any directory in the file system.

o   Device-independent input and output. Each physical device, from interactive terminals to main memory, is treated like a file, allowing uniform file and device input and output.

o   A set of related text editors, including a full screen editor.

o   Flexible text processing facilities. In XENIX, commands exist to find and extract patterns of text from files, to compare and find differences between files, and to search through and compare directories. Text formatting, typesetting, and spelling error-detection facilities, as well as a facility for formatting and typesetting complex tables and equations are also available.

o   A sophisticated "desk-calculator" program.

o   Mountable and dismountable file systems that permit addition of floppy disks to the file system.

o   A complete set of flexible directory and file protections that allows all combinations of read, write, and execute access for the owner of each file or directory, as well as for groups of users.

o   Facilities for creating, accessing, moving, and processing files and directories in a simple and uniform way.

3.2 INFORMIX-SQL DBMS

A data base is a collection of information or data that is organized into one or more tables. Each table consists of data that is organized into rows and columns. Each row contains a complete set of data about one of objects described in the table. Each column contains a particular type of information about each row in the table.

A data base management system is a computer-based record-keeping system consisting of useful programs or modules that perform data management tasks. A good data base management system can substantially reduce the amount of time required to organize, store, and retrieve information. It can even summarize, group, and format information in ways that would not otherwise be possible.

INFORMIX-SQL is a relational data base management system. Unlike a file management system, a relational data base management system lets you create direct relationships between tables within the data base. With INFORMIX-SQL, there is no need to duplicate the same information in different tables. Instead, you use a technique called "joining" to connect data from different tables. The ability to join data from different tables is one of the more important features of a truly relational data base management system.

4.0 REFERENCES

1. INFORMIX-SQL Relational Data Base Management System User's Guide, Relational Database Systems, Inc., 1986.

2. INFORMIX-SQL Relational Data Base Management System Reference Manual, Relational Database Systems, Inc., 1986.

3. SCO XENIX Reference Manual, Volumes 1 through 6, Santa Cruz Operation, 1985.